

hour of its occurrence is identical with that of the appearance of the phenomenon seen by me, and the day of the month so closely approximates as to be only one day later. That which Dr. Armstrong saw in 1842 was at the time of the full moon in February.

C. POOLEY

Curious Habit of a Brazilian Moth

AT the last meeting of the Literary and Philosophical Society of Liverpool (April 30) I read the following note on a remarkable habit of a Brazilian moth; and as it is a habit that has perhaps not been observed before, it may be of sufficient interest for insertion in NATURE.

The moth (of which I inclose a sketch) is a species of *Panthera* (*P. Apardalaria*).

When rambling about the rocky beds of small streams on the Serra da Contareira, near San Paulo, I have often been struck by the great numbers of yellow and black moths that flew up from the water as I disturbed them by my presence. On careful examination I found that these moths were resting upon the wet stones, in many cases even with a film of water flowing over the spot on which they had settled, and were all engaged in sucking up the water through the proboscis (I can hardly call it drinking, for no imaginable thirst could account for the enormous amount of water sucked up), and this water was passing through the moths, minute drops forming on the tip of the abdomen, and falling off as formed. I timed several specimens, and found that the average rate was fifty drops per minute. I have observed the same individual remain in the same position with the action going on unceasingly for three hours; and in all probability it had been there some time before I observed it, and remained after I went away. But even in this length of time the quantity of water passing through the moth was enormous in proportion to its size. The drops I did not actually measure, but they are probably between 1 and 2 millimetres in diameter. Taking them to be 1.5 millimetres in diameter, the total amount of water in the three hours was 15.84 cubic centimetres, or almost exactly a cubic inch. This quantity is equal to about 200 times the volume of the body of the moth!

The tibiae of the hindlegs are very thick and are armed with long hairs, that by their capillary action prevent the moth being immersed in the water. I have often seen one of them knocked down by a little spurt of water splashing over the stone on which it was standing, and it recovered itself immediately without being wetted in the least.

Upon my return to Brazil I shall try to measure exactly the amount of water passing through one of these moths. And it would be most interesting to find out what is the object of this excessive drinking. Can it be that the moth extracts nourishment from minute particles of organic matter contained in the water?

I may remark that the water of the streams where I have observed the moth is very clear and pure.

E. DUKINFELD JONES

Acrefield, Woolton, Liverpool, May 5

Leaves and their Environment

I TAKE the following from an experiment which I made two years ago. I think it throws some light on the point under discussion:—

On May 8 six young pea plants, similar in size, &c., were transplanted from the garden into three large flowerpots, a pair in each, and were covered with bell glasses. On next day an apparatus for generating a constant stream of carbonic acid gas was connected to No. 1 bell glass. No. 2 was left normal. No. 3 inclosed a small disk of caustic potash solution. They all had as nearly as possible the same amount of sunlight, and the same measured quantity of water was given to each.

Taking the notes referring to the leaves only I find on May 21: "No. 1, vigorous large leaves. No. 2, much smaller leaves. No. 3, leaves smaller than No. 2, with edges serrated as if the veins were growing on, but could not find food for fleshy part of leaf—really a starved plant."

On May 27 the plants were taken up and washed, when No. 1 weighed 148 grains; No. 2, 115.5 grains; and No. 3, 87 grains. After drying, the weights of Nos. 1 and 3 were as 19 to 13. The longest leaf on No. 1 measured 1½ in., and on No. 3 1½ in.

J. BROWN

Belfast, May 3

Foam Balls

IN NATURE, vol. xxvii, p. 531, there is a mention by Mr. J. Rand Capron of foam ball. These are common on the coast of the Northern United States, especially of a cold dry day, when, if there be much wind, these huge foam balls, which may reach a diameter of two feet or more, are rolled up the beach. Their weight soon changes their form, so that at last they present the appearance of long white rolls of sparkling foam. This singular appearance was first described in verse, so far as I know, by Dr. S. Weir Mitchell, of Philadelphia. The verse, as I recall it—I quote from memory—is this:—

"And wilder yet when of a winter day
The cold dry norther rolls athwart the beach
The gleaming foam balls into serpents white,
And all the sand is starred with rainbow light."

Philadelphia, U.S.

AN AMERICAN SUBSCRIBER

ANTHROPOLOGY¹

II.

IN considering the claims of anthropology as a practical means of understanding ourselves, our own thoughts and ways, we have to form an opinion how the ideas and arts of any people are to be accounted for as developed from preceding stages. To work out the lines along which the process of organisation has actually moved, is a task needing caution and reserve. A tribe may have some art which plainly shows progress from a ruder state of things, and yet it may be wrong to suppose this development to have taken place among themselves—it may be an item of higher culture that they have learnt from sight of a more advanced nation. Our own history shows to how small an extent we have been the developers of our own arts and sciences, how largely we have embodied the culture of other nations. It is essential in studying even savage and barbaric culture, to allow for borrowing, so as to clear the lines of real development. When the savage comes into contact with the civilised man, he does not see his way to copy all the high contrivances of this mysterious higher being, but where he thinks he can imitate, he is apt to try, and sometimes succeeds, though oftener fails. After a time of friendly intercourse, the wild man generally learns such substantial secrets of culture as he is in a position to assimilate. Ethnologists have been inclined to look on the wandering Esquimaux of the polar regions as "nature-men," and perhaps no harm has arisen from reasoning on them as such, for they are in many ways fair representatives of the rude nomad hunter and fisher. But I suspect that in some respects they do not show the mere result of the primitive savage working out by slow degrees a somewhat higher culture. Looking at them not as they are now, Europeanised under missionary training, but as they were when Egede and Cranz went out to them from Denmark in the eighteenth century, it seems that their way of life even then had some incidents above the savage level. Their clothing was artistically contrived to resist the intense cold. Its material is sometimes strange to our notions; an undershirt of birds' skins with the feathers inside requires an effort to realise even in our bleakest season. But a leather tunic with sleeves and a hood to pull over the head, a pair of sealskin breeches with leather stockings and boots, form a defence against the cold, at once like that familiar to Europeans, and unlike any unquestionable savage costume, such as the furs which in the Antarctic regions the shivering Fuegians throw over their shoulders. Moreover, all across the polar coast region of the Esquimaux their houses of earth or moulded snow, with compartments like ship-cabins, are warmed and lighted with blubber, burnt in lamps shaped out of potstone with moss to serve as wick, and over these are hung the potstone kettles for their slight cookery. Now,

¹ Two lectures on "Anthropology," delivered on February 15 and 21 at the University Museum, Oxford, by E. B. Tylor, D.C.L., F.R.S. Continued from p. 17.

the kettle carved out of potstone (*lapis ollaris*) is ancient in Scandinavia, and the plain open dish lamp occurs widely in Northern Europe (it lingered till lately in the Scotch *crusie*). But the lowest races know nothing of so cultured an invention as a lamp. It is of course within the wide bounds of possibility that under the stress of a climate so cold for loose-clad, half-naked men, and where the scanty supply of wood drifted to the shore was too precious for fuel, the Esquimaux, driven by the warlike American Indian tribes of Algonquins and Athabascas, may have discovered how to improve their clothing, and to warm and feed themselves by the aid of lamps, so that they could hold their own against the rigour of polar nature. But if so, how curious that they should have done this by inventing just what the Norsemen could have taught them. Independent Greenland invention, if possible, is hardly probable, and I think a strong case may be made for an easier explanation. We know that the ancestors of the Esquimaux had been in contact with Scandinavians since before our Norman Conquest, when in 1004 the small, sallow, broad-cheeked Skrállings in their skin canoes slew Thorvald with their spears thrown with throwing-sticks, and he was buried with a cross at head and feet at Crossness, which may have been about where long afterwards the Puritan emigrants landed from the *Mayflower*. It seems clear that the Esquimaux had to go north from these delightful regions of New England, but they lived for ages within reach of the Norse settlers in Greenland, whose last survivors in the fourteenth century are thought even to have merged their race in some tribe of the despised Skrállings. Thus it is not surprising that the Scandinavians returning to Greenland after four hundred years more should have found the Esquimaux shaping their skins and furs into semi-European garb, and by the aid of these and the stone lamps and kettles maintaining a polar existence which, without these, would have been difficult indeed. Even that curious Scandinavian institution, the scurrilous *nith*-songs with which the Norse champions drove one another wild with fury, so that they had to be prohibited by law under heavy penalties, had become a regular Esquimaux custom, and Rink calls them simply *nid-vise*, just as he would have called them among his own Danish forefathers. His first specimen is a Greenland song sung at festive winter gatherings, made to ridicule one Kukouk, who was a poor hunter and fisher, but loved to make friends with the white men; it begins

"Wretched little Kukouk
He takes care of himself;" &c.

If this view of a Scandinavian element in the culture of the Greenlanders is sound, we have the curious spectacle of modern Danes going to civilise the wild men and describing their manners and customs as those of savages, without a thought that some of the most curious of them were relics of forgotten life of their own old Norse-land.

That families can go down in the world is only too well known, nay, that whole tribes and nations can in evil days fall off from their old prosperity, intelligence, and virtue. The question asked by the anthropologist is whether a civilised race can sink to the barbaric level, and thence to the lowest or savage level. The answer is as yet in a confused state, but certain elements of truth may already be got at. It appears at any rate that when civilised men take to a wild life, and mix with the people of the wilderness, they may give rise to a race in whom knowledge and comfort and morality are lowered from the ancestral level. This is the familiar case of the Gauchos of the Pampas, Spaniards in language and partly in race, but leading a life which to the soldiers of Pizarro would have seemed gross and brutal. In the forests of Ceylon there still roam families of wild men, the so-called Veddas or hunters who, as names of places show, once lived widely over the country till dispossessed by the

invading nations from India. The wildest Veddas are to be found in the park-like hunting-grounds of Nilgala, and in "the land of Bintan, all covered with mighty woods and filled with abundance of deer," as Robert Knox described it two centuries ago. These wild shy people, of stature averaging under five feet, and in skin duskier than the Singhalese around them, with tiny heads covered with a mass of shaggy hair, and showing in their dull and melancholy faces that uniformity of feature and expression so characteristic of low grades of culture, may seem at first sight to lead a life comparable with that of the forest savages of Brazil or New Guinea. Yet their language is a Singhalese dialect; they are in fact the one known race who may be called savages, and yet speak a language of our own Aryan stock. The following is one of their charms, intended to subdue an elephant in the forest, whom it describes in terms which show a curious transition between the charm and the riddle; indeed, every one who remembers our own nursery riddle about the cow will be struck with its close resemblance to the Vedda charm:—

"Ichchata vallyay
Pachchata vallyay
Dela devallyay
Situ appa situ."

"In front a tail,
Behind a tail,
On the two sides two tails,
Stay, bea t, stay!"

This is almost Sanskrit, and it is obvious that with so distinctly Aryan language there must needs come some strain of Aryan blood, for it is almost outside the possibilities of social life that a tribe should adopt a language, without such intermarriage with those who speak it that thenceforth the people will in part have ancestry corresponding to the new tongue. The Singhalese indeed hold the Veddas to be of Aryan descent, and in the Mahawanso they stand as offspring of no less an Aryan ancestor than King Vijayo, who married the native princess Kuvéni, and by her means conquered the Island of Ceylon; afterwards, when he ungratefully divorced her and took a daughter of King Pandavo of Madura, the native queen wandered away, and her children married in-and-in, as continued till lately to be Vedda custom. This, says the poem, was the origin of these Pulindá or barbarians; and thus it is that they still claim royal descent, and look down on the Singhalese. Combining the evidence of the Vedda skulls and features with that of their language, we may so far agree with poetic legend as to consider them really outcasts of mixed Aryan and Dravidian or indigenous race. If so, it must be granted that descendants of the Aryan stock, "heirs of all the ages in the foremost files of time," may be found among tiny, shy, wild men of the woods, with sad dull features peering out of their matted locks, who dwell in huts of boughs when they cannot get the preferred shelter of a cave, who live on venison and wild honey and fish drugged by putting poisonous fruit in the pools, and who in their intercourse with the more cultured Singhalese bring themselves into contempt by their simple truthfulness, that utter incapability of cheating and lying which is as characteristic of the savage state as it is rare at higher levels of culture. Truly the condition of these poor relations of ours is of interest. But they are not Aryans on their way upward from primitive rudeness. Their kinsfolk actually till patches of ground and are a settled if a rude people, and these wildest Veddas are evidently a few dwindling clans of outcasts sunk from a higher stage. There is not among them any evidence that they have been in the Stone Age; a story is told of them like our own legend of Wayland Smith's cave, that in old times when they wanted arrows they would carry loads of meat to the smith's shop in the night, and hang it there with a leaf cut to the pattern of the arrow-heads they expected him to leave out in exchange; at any rate it is certain that they have always

had iron by barter from more civilised neighbours, and their occupations, especially the taking of wild honey, are such as belong to the Singhalese.

In the presence of such examples as these, anthropologists admit that civilisation has always had its ups and downs. A nation may themselves develop some thought or art, or borrow it from abroad, and then ages afterwards lose this knowledge or skill because they have no longer the power or leisure to keep it up. It is only after taking such cautionary examples of the migration and degeneration of culture, that it becomes safe to trace the lines along which civilisation has developed in the world.

"When will hearing be like seeing?" says the Persian proverb. Words of description will never give the grasp that the mind takes through actual sight and handling of objects, and this is why in fixing and forming ideas of civilisation, a museum is so necessary. One understands the function of such a museum the better for knowing how the remarkable collection formed by General Pitt-Rivers came into existence. About 1851 its collector, then Colonel Lane Fox, was serving on a military sub-committee to examine improvements in small arms. In those days the British army was still armed (except special riflemen) with the old smooth-bore percussion musket, the well-known "Brown Bess." The improved weapons of Continental armies had brought on the question of reform, but the task of this committee of juniors to press changes on the heads of the service was not an easy one, even when the Duke of Wellington, at last convinced by actual trial at the butts, decreed that he would have every man in the army armed with a rifle musket. Colonel Fox was no mere theorist, but a practical man who knew what to do and how to do it, and his place in the history of the destructive machinery of war is marked by his having been the originator and first instructor of the School of Musketry at Hythe. While engaged in this work of improving weapons, his experience led his thoughts into a new channel. It was forced upon him that stubbornly fixed military habit could not accept progress by leaps and bounds, only by small partial changes, an alteration of the form of the bullet here, then a slight change in the grooving of the barrel, and so on, till a succession of these small changes gradually transformed a weapon of low organisation into a higher one, while the disappearance of the intermediate steps as they were superseded left apparent gaps in the stages of the invention, gaps which those who had followed its actual course knew to have been really filled up by a series of intermediate stages. These stages Colonel Lane Fox collected and arranged in their actual order of development, and thereupon there grew up in his mind the idea that such had been the general course of development of arts among mankind. He set himself to collect weapons and other implements till the walls of his house were covered from cellar to attic with series of spears, boomerangs, bows, and other instruments so grouped as to show the probable history of their development. After a while this expanded far beyond the limits of a private collection, and grew into his Museum. There the student may observe in the actual specimens the transitions by which the parrying-stick used in Australia and elsewhere to ward off spears must have passed into the shield. It is remarkable that one of the forms of shield which lasted on latest into modern times had not passed into a mere screen, but was still, so to speak, fenced with: this was the target carried by the Highland regiments in the Low Countries in 1747. In this museum, again, are shown the series of changes through which the rudest protection of the warrior by the hides of animals led on to elaborate suits of plate and chain armour. The principles which are true of the development of weapons are not less applicable to peaceful instruments, whose history is illustrated in this collection. It is seen how (as was pointed out by the late Carl Engel) the primitive stringed instrument was the hunter's

bow, furnished afterwards with a gourd to strengthen the tone by resonance, till at last the hollow resonator came to be formed in the body of the instrument, as in the harp or violin. Thus the hookah or nargileh still keeps something of the shape of the coco-nut shell from which it was originally made and is still called after (Persian, *nârijil* = coco-nut). But why describe more of these lines of development when the very point of the argument is that verbal description fails to do them justice, and that really to understand them they ought to be followed in the series of actual specimens. All who have been initiated into the principle of development or modified sequence know how admirable a training the study of these tangible things is for the study of other branches of human history, where intermediate stages have more often disappeared, and therefore trained skill and judgment are the more needed to guide the imagination of the student in reconstructing the course along which art and science, morals and government, have moved since they began, and will continue to move in the future.

It is convenient in illustrating intellectual development to choose a branch where every one, so to speak, carries his specimens about with him. Some eighteen years since I made an attempt to describe and analyse the gesture-language, in order to show the consistency of principle with which men debarred from spoken language, whether deaf-mutes or men unacquainted with one another's languages, contrive to utter their own thoughts and understand the thoughts of others through expressive gestures. In these gestures we have a direct and universal outcome of the human mind, a system by which a deaf and dumb scholar from an English asylum can hold converse at first sight with Laplanders or Iroquois or Chinese. They understand each other because they use signs for the most part self-expressive, and conveying their own meaning to those who never saw them before. Now any idea can be thus conveyed by self-expressive signs, not in one way alone but many. A hunter of the prairie, for example, has to express the idea "horse"; this he can do by various signs, as by the hand so held as to imitate a horse's head, or by the act of straddling a pair of forked fingers across the edge of the other hand, or by the imitated motion of the gallop; different as these signs are, each tells its own tale. When, however, people have been long used to converse together in gestures, they are apt to cut them down into abbreviated forms which do not show their meaning at first sight, and might even seem to outsiders to be artificial. Thus, a white man, seeing a Cheyenne Indian hold his bent arm forward with the hand closed knuckles upwards, was puzzled as to what this might mean; the Indian, seeing his look of perplexity, took a stick, and bending his head and back, completed the picture into that of a bent old man leaning on a staff, thus showing that the sign meant "old man." Traditional signs may even go on after their reason has passed away, as the sign for "stone," made by hammering with the closed fist on the other hand, a gesture dating from the Stone Age, in which the Indians lived within a few generations, when their only hammer was a stone. These two examples are taken from the recent careful collection of North American gesture-signs by Col. Mallery, published by the Smithsonian Institution. The labour and expense which anthropologists in the United States are now bestowing on the study of the indigenous tribes contrasts, I am sorry to say, with the indifference shown to such observations in Canada, where the habits of yet more interesting native tribes are allowed to die out without even a record. But to return to the gesture-language. This passage of self-expressive signs into what seem arbitrary signs throws strong light on the principles of spoken language, where we find a few self-expressive sounds, such as interjections and names of animals imitated from their cries, while the great majority of words are not even traceable back to the self-expressive

stage from which the analogy of gesture-language leads us to suppose that they originally sprang. Moreover, the sequence or collocation of gesture-signs conforms to fixed rules, which display the action of the thinking mind. The subject must precede the attribute: for instance, such a sequence as a "heavy stick" would have no sense to the sign-maker, who necessarily introduces the stick before he can clothe it with an attribute. Phrases, so to speak, out of an American gesture-story illustrate the gesture-syntax. When the finger-tips of the two hands are brought together to show a hut or wigwam, then pointing to one's own breast does the work of the pronoun, "hut-mine." The sequence "buffalo-one-shot-killed" starts with the idea of buffalo, adds that there was one, and then the sign-maker, having placed the idea of that one buffalo before his interlocutor, can imitatively shoot at it, and it falls dead. He can even imply the idea of causation in the sharp following of the shot by the animal's fall, which makes one the instantaneous consequence of the other. In spoken language the theory of syntax or combining-order is a subject of great complexity and difficulty. Of the few philologists who have attempted it, mention may be made of Steinthal, von der Gabelentz, and Max Müller, whose early dissertation is published as an appendix to Bunsen's "Philosophy of Universal History." But while the age-long shifting history of speech has brought the order of sequence of its elements into an entanglement hardly possible to unravel, we have still before us the first clue in the sequence by which man has arranged his gestures, and will do so anew when he is put to pantomime as a means of converse. Thus the philologist, engaged in studying the formation and combination of speech-sounds or words, may have from the anthropologist the natural rules framed by the human mind dealing in the simplest of known ways with the problem how to express thought.

Scarcely less light is thrown on the working of the human mind by the history of that special development of error which since the remotest ages has taken the form of magic. Of late certain events in France have revived popular interest in that curious old-fashioned instrument, the divining-rod, and as I happened to be staying at a friend's house in the Mendip district, where it is still used by well-sinkers and miners, at my request a regular practitioner was sent for. I show the instrument—a forked hazel twig, which is held loosely by its outward-bent ends in the closed upturned hands, so that it can rise or fall easily. On approaching a spring, vein of ore, &c., the rod dips toward it, but when replaced horizontally and passing over the place, it rises toward the bearer's face. That the spring or other object sought has really no effect on the instrument, but that its dipping has to do with the seeker, is sufficiently shown by its being considered to act with the most dissimilar objects—a spring of water, a vein of ore, a piece of metal, a dead body which have, however, this in common, that they are what the "dowser" is in search of. It does not appear that he fraudulently moves the rod, but my sensations led me to agree with Chevreul that the slight movements of the hands are unconsciously guided to accumulate into impulses sufficient to cause the twig to dip or rise. I noticed that when I could allow my attention to stray, the rod would from time to time move in my hands in a way so lifelike that an uneducated person might well suppose the movement to be spontaneous. It is hardly necessary to say that the rod always moves where the bearer's mind suggests an object. In the present case the special business of the dowser was to find springs of water, and his difficulty was to distinguish between the mere *top springs*, which though acting on the rod were of course practically worthless, and the valuable *main springs* which would repay the sinking of a well. In the trial an incident occurred which threw light on the

nature of the whole operation. The rod when brought over my watch, dipped strongly, and the dowser looking up at me with innocent archness said: "You see, sir, it's just over the *main spring* of your watch." The remark showed how his mind was so simply controlled by association of ideas, that he expected the same action from a *main spring* of water and of a watch, their likeness of name quite overriding their unlikeness of nature. Nothing could have better shown at once the man's sincerity and the purely ideal character of his craft, nor does one often meet with a more perfect illustration of the state of mind where magic has its origin in delusive analogy, whether of things or of their names. Magic has often passed as mystery, but to the anthropologist few arts are less mysterious; he reads by childishly simple association of ideas the open secret of half the magical rules which prevail in savage and barbaric life, and even last on into the midst of civilisation. In the wild north-west of Ireland I learnt not long since the use of the "worm-knot" for curing ailments of cattle; it is a bit of cord in which a peculiar slip-knot is made, and if this knot when pulled over the creature's back comes away clear (as shown), the disease will come away too. On the same principle, the purpose of the pig's heart stuck full of thorns and bricked up in an old chimney (produced) was sympathetically to pierce with pain and shrivel with disease some hated person, probably a reputed witch suspected of "overlooking." It is a curious exercise to read from this point of view the precepts of the modern astrologer, which still show their quasi-reasons, futile but quite intelligible. Suppose one's self seeking for lost property, the signifier of the thing missing will be the moon, apparently because herself so often lost and found again. According to her position, east or west, the object must be looked for; if the Moon is in a human sign, as the Twins, it will be in a human habitation, but the sign of the Bull indicates its being in a cow-house. Even the thief's clothes are denoted by the governing planets; under Saturn he will be found in a black suit, or if Mars is in it, his presence will be shown by some red article, perhaps a neck-handkerchief. Folly as this is, it at any rate shows the working of uneducated men's minds, where the argument from analogy appears in its early crude state, not yet cleared by observation, but still on its way to become, under proper checks and reservations, the explorer of the universe and the guide to science.

This is by no means the only example of a delusive theory being, when honestly worked out, productive of scientific truth. In times when the study of races for mere knowledge sake had little hold on scholars' minds, anthropology was much indebted to the fancy that any people whose presence in an outlying region seemed hard to account for must be the "lost tribes of Israel." One nation answered the conditions of this theory about as well as another: the remnants of the ten tribes were found marauding in the Afghan passes, wandering with the reindeer in Lapland, chasing buffaloes on the American prairies, or slaughtering human victims on the teocallis of Mexico. The manners and customs of these countries being studied, showed distinct analogies with Jewish customs, as indeed they would have with German or Chinese, or any other. Enthusiasts such as Rudbeck, or Garcia, or Adair, of course did not see this, but the practical result was that, especially in North and South America, evidence of great value in the history of civilisation was recorded which would have perished had it not been thus caught before it was swept away by European influence. This is a good instance of its being better to have a bad hypothesis than none at all. The ten tribes delusion has now, however, sunk to a lower level than when Lord Kingsborough spent his fortune in publishing the Mexican pictures and chronicles. But in spite of all the new real knowledge as to races, it has even in this country more

votaries than ever. On opening, the other day, a book of the curious "Anglo-Israelite" sect, I met with the following passage, written in evident seriousness by a seeker after proofs that the British nation are the Lost Tribes of Israel:—"I am even now acquainted with many words in current use in some parts of the West of England that were in common use by Israel of old, and that I have not found in use in any other country—such as goad, gourd, barm, leaven, comrade, lattice, chambering, flay, score, gallon, cruse, lintel, latchet, girdle, pitcher, platter, glean, &c., &c." It takes a little thought to understand the full depth of ignorance of a man who, finding these words in the English Bible, thought they were used by the ancient Israelites. Why I ask you to notice it is that the author of the volume it is printed in says that 100,000 copies of his work have been sold; there is, indeed, no doubt but that this abject nonsense has a far larger circulation than all the rational ethnology published in England. It opens a window by which we can see into the state of education of its readers, who mainly belong to the lower middle class, and whose thousands of schools are as yet unvisited by the University Delegates on the one hand or the Education Department on the other. Even our Public Elementary education, good as it is in many respects, passes some questionable anthropology. Happening to look a few days ago at a Third Standard book on English History, I was surprised to find a picture of a South Sea Islander, tattooed all over, standing to represent the condition of the ancient Britons, who are described as savages. Now this is hardly an appropriate designation for a pastoral and agricultural people, who had a gold coinage, and whose war-chariots even the Roman legionaries found troublesome to deal with.

Having now attempted to support the claims of the problems of human nature to fuller recognition in our system of advanced education, it may be well to observe by way of caution that anthropology, while contributing materials to other sciences, does not dictate the conclusions which each science is to draw from them. It has not a rule of morals, a system of politics, or a doctrine of religion to teach, only a series of facts showing the stages through which each of these has been developed, and with these the counsel that the anthropological way of studying human conduct is to trace its principles along the historical line of their change and progress. Anthropology, though acknowledging degeneration as an important factor in human life, gives no encouragement to pessimist theories of society. The clinging to life by savage and civilised alike is a measure of their judgment that with all its ills it is a substantial good, to be valued and defended. That the tendency of mankind is toward industrial progress need not be proved, for it is not denied. That moral progress is on the same footing rests on the main fact that man obtains the happiness he seeks, not only through his own sensations but by sympathy with the enjoyments of others; now beings whose interests are thus consonant with the prosperity of those around them are plainly on the road to good rather than evil. At the same time facts constantly presenting themselves in anthropology guard the student from a prejudiced optimism. He has the picture constantly before him of low-cultured but kindly and truthful tribes of favoured climates, into whose midst the march of civilisation is bringing the beginnings of trade and wealth, and with them temptations to selfishness and dishonesty. At every step in the advance towards prosperity he sees, accompanying the growth of knowledge and the raising of the social standard, a series of concomitant evils, the break-up of the old stage, the failure to assimilate the new. Often a dispiriting lesson, this is yet of the highest practical value, for it elucidates what the statesman should be ever striving to learn, how, in the remodelling of institutions, to gain the utmost advantage while minimising the accompanying loss.

To conclude: my explanation of the unsymmetrical way in which I have here put forward the cause of anthropology must be that the necessity of the case compelled me to a certain scrappiness of treatment. For presenting my subject thus in shreds and patches I am tempted to apologise in that well-worn lecturer's jest, the story of the man who had a house to sell and carried about a brick as a specimen. Perhaps, however, there may be more of a moral in this story than is commonly supposed. I cannot help fancying that the flippant Greek who first told it had actually seen something of the kind done in sober earnest. He may have watched some grave Roman going down to the prætor's court carrying a tile in his hands, which in the lawsuit was to be the legal symbol of the house itself, just as a farm would be represented by a sod of its turf, or as one of our Teutonic forefathers, living in a wooden house, would transfer it by handing over a chip from the doorpost. This indeed is the very position in which I find myself placed in undertaking to treat of anthropology in two lectures. Because the whole structure is too extensive and too massive to bring into court, I have been obliged to symbolise it by fragments taken here and there, and can only ask that these be accepted as symbols, placing the edifice they represent under the guardianship of the University of Oxford.

THE ARCTIC METEOROLOGICAL STATION ON THE LENA

THE last number of the *Izvestia* of the East-Siberian branch of the Russian Geographical Society gives further news of the Lena Arctic Meteorological Station, dated October 24, 1882. This news was brought by the American officers, Messrs. Garber and Schütze, who left the station on October 25, and reached Yakutsk on November 29. Mr. Schütze made a sketch of the station, which appeared in the *Izvestia*, and which we reproduce. The house brought from Yakutsk proved to be comfortable and warm. It has been erected at the Sagastyr arm of the Lena, on Sagastyr Island (in $73^{\circ} 22' 30''$ N. lat., and $144^{\circ} 14' 46''$ E. long.); the name of this island is very significant: it means "it blows away." Galleries of planks have been erected behind the house to connect it with four pavilions for instruments. Besides the coal that has been taken from Yakutsk, the station has a good supply of fuel in the driftwood scattered around the station. The Sagastyr arm of the Lena supplies the inhabitants of the station with fresh fish. The health of all the members is satisfactory. Dr. Bunge received a contusion to a rib during the journey, but he is now well, and is besieged by indigenes, who come to him for medical help. Several Tungus families stay at one and two miles' distance from the station, and they are on the best terms with the meteorologists. The temperature is very low and, as there is no snow, the prospects are not very brilliant. The soil is frozen to a great depth, and cracks; the rivers and lakes are covered with a thick sheet of ice, so that the water beneath the ice is shallow, and the fish are in want of air to breathe. The food for the reindeer is frozen. Even at Yakutsk there was but one inch of snow on December 16, and a great inundation is expected for the spring, as well as epidemics, which are said usually to follow inundations.

As to the journey from Bulun to Sagastyr, it was performed not without difficulties. On August 6 a fresh west wind compelled the boats to stop on unfavourable ground, and the wind blowing with increasing force, it soon turned out a strong storm, blowing from north-west on August 9. The boats were thrown aground close by the banks of the river, and filled with water. The waves rolled above their decks. The chief instruments were, however, safe, as they were landed in time. On August 19 the expedition reached the Ketakh settlement, seven